

REMARKS

Applicants have carefully considered the March 31, 2006 Office Action, and the comments that follow, together with the accompanying Declaration under 37 C.F.R. § 1.132 by Hiroshi Sakabe, are presented in a bona fide effort to address all issues raised in that Action and thereby place this case in condition for allowance. Entry of the present response is respectfully solicited. It is believed that this response places this case in condition for allowance. Hence, prompt favorable reconsideration of this case is solicited.

Claims 11, 12 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chapman, Jr. et al. (U.S. Pat. No. 5,547,761, hereinafter "Chapman") in view of Becker et al. (U.S. Pat. No. 4,454,047, hereinafter "Becker") and Hiraga et al. (U.S. Pat. No. 6,268,469, hereinafter "Hiraga") and further in view of Carey (U.S. Pat. No. 3,256,251, hereinafter "Carey"). Applicants traverse.

In the Advisory action dated July 21, 2006, the Examiner acknowledged that Applicants previously argued that suspension polymerization was neither disclosed or suggest in the applied prior art. The Examiner asserted that the suspension polymerization was intended to limit the product of polyvinylidene fluoride copolymer. The Examiner, therefore, concluded that the suspension polymerization step was not afforded patentable weight in the present process claim (claim 11) since the limitation was a product-by-process limitation. Applicants respectfully traverse.

Applicants submit that claim 11 is a process claim and **not** a product claim. Therefore, the Examiner's characterization of the claimed suspension polymerization step as a product-by-process limitation is improper and contrary to U.S. practice. The rejection is legally flawed for at least this reason.

The method of claim 11 requires, in pertinent part, a suspension polymerization step, which is explicitly required in the independent method claim 11 and the limitation has been ignored by the Examiner. None of the cited documents teaches or suggests suspension polymerization, but rather only disclose emulsion polymerization. Thus, the applied prior art fails to disclose or suggest every limitation of independent claim 11. The rejection is not legally viable for at least this reason.

In Applicants previously submitted response (June 30, 2006), the differences between the copolymer particles obtained by emulsion polymerization (the prior art technique) and the copolymer particles obtained by suspension polymerization (claim 11) were shown, as evidenced by pages 489 to 490 of "Modern Fluoropolymers", Edited by John Scheirs, c1997, John Wiley & Sons Ltd, the section "3 POLYMERIZATION" (Particle diameter of PVDF obtained by emulsion polymerization is from 0.2 to 0.5 μm , while the particle diameter of PVDF obtained by suspension polymerization is approximately 100 μm). This literature article was previously submitted with Applicants' response of June 30, 2006 (Appendix A).

Nevertheless, Applicants submit concurrently herewith, an executed Declaration by Hiroshi Sakabe to further demonstrate that a copolymer having the same composition as Example 6 of the present application, when produced by emulsion polymerization, results in a product with different properties. Specifically, the ratio of the scattered-light intensities of the copolymer obtained by emulsion polymerization is 28.2, whereas the scattered-light intensities of the copolymer obtained by suspension polymerization (claim 11) is 10 or lower.

Thus, when the copolymer particles are produced by emulsion polymerization, the separation of the particles (as defined in the present application) cannot be conducted. Therefore, the process of the suspension polymerization is one important factor of the present application.

Moreover, the ratio of the scattered-light intensities of the copolymers produced by emulsion polymerization (i.e. 28.2) is outside of the range defined in the claim 11 (i.e. 10 or lower) of the present application.

As previously argued, and apparently recognized by the Examiner in the Advisory action, none of the cited documents teaches the process for preparing a copolymer by suspension polymerization as required in independent claim 11.

In Chapman, emulsion polymerization is employed for producing polymers from the description at col. 6, lines 3 to 7 (“dispersion (sometimes designated emulsion)”); col. 7, lines 1 to 5 (water-soluble initiators such as APS, KPS are used); col. 8, lines 27 to 37 (polymers are formed by coagulation), and col. 15, lines 5 to 6 (particle size obtained in polymerization is typically 0.05 – 0.2 μm). Similarly, Becker discloses that emulsions are employed as described at col. 8, lines 8 to 16. Hiraga, at col. 2, lines 17 to 32 discloses a solid-liquid separation method of an emulsified dispersion of fluorine-containing polymer particles. Carey teaches the recovery of solid resinous materials from emulsions thereof and also teaches a method of coagulating solid resinous materials from emulsions thereof. See Carey at col. 1, lines 10 to 20.

Therefore, none of the cited documents teaches the process for preparing a copolymer by suspension polymerization as required in independent claim 11. Thus, the Examiner has failed to identify a source in the applied prior art for every claim limitation recited in independent claim 11. It is legally erroneous to ignore any claim limitation. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988). For at least this reason, the rejection is not legally viable and should be withdrawn.

Moreover, the particle diameter of polymers obtained by emulsion polymerization is smaller than 1/100 of the particle diameter of polymer obtained by suspension polymerization. The Examiner’s attention is directed the accompanying Appendix, wherein as described at pages

489 to 490 of "Modern Fluoropolymers", Edited by John Scheirs, c1997, John Wiley & Sons Ltd, the section "3 POLYMERIZATION", the particle diameter of PVDF obtained by emulsion polymerization is from 0.2 to 0.5 μm , while the particle diameter of PVDF obtained by suspension polymerization is approximately 100 μm .

Applicants submit that since the particle diameter of PVDF obtained by suspension polymerization is large, a dry powder is formed through the process of separation, washing and drying without granulation operation. In the suspension polymerization, the polymerization progresses from the surface toward the center in the droplet of the monomer by a certain polymerization initiator, so that the particles are formed as spheres of pearl-shape which has the minimum energy and the particle size is decided by the size of the droplet.

On the other hand, in the emulsion polymerization, a dry powder is formed through the process of separation, washing and drying after agglomeration to the secondary particles by the method as described in Hirage. That is, in the emulsion polymerization, polymerization grows on the surface of the emulsification micelle of the monomer by a certain polymerization initiator existing on the water side. The size of micelle is 2 to 4 figures smaller than the droplet of the suspension polymerization.

It is well known to persons skilled in the art that there are distinct differences in physical properties such as shapes or density between the particles agglomerated after emulsion polymerization and the particles obtained by suspension polymerization. Therefore, it would be improper to conclude that the separation method after the emulsion polymerization is related to the separation method after suspension polymerization. It is not obvious from the separation method after emulsion polymerization to expect that the copolymer particles obtained by suspension polymerization float or precipitate in water. None of the cited documents teaches or suggest the influence that the separation of particles gives to thin film formation.

Moreover, Applicants submit that neither Chapman nor Becker, alone or in combination, teaches the separation of the copolymer particles floating in the upper part of the mixture from the copolymer particles precipitated in the lower part of the mixture. Chapman teaches the separation of a non-water-wet powder which floats on the water and Becker teaches separation of an oil phase from a water phase. Moreover, the Examiner's asserted motivation to modify the process of Chapman/Becker in view of Hiraga lacks the requisite factual basis and the requisite realistic motivation. In the present case, the Examiner is improperly assuming that the process of Chapman combined with Becker would apply to the preparation of polyvinylidene fluoride.

The requisite motivation to support the ultimate legal conclusion of obviousness under 35 U.S.C. § 103 is not an abstract concept, but must stem from the applied prior art as a whole and have realistically impelled one having ordinary skill in the art to modify a reference or combine references to arrive at a claimed invention. *In re Deuel*, 51 F.3d 1552, 34 USPQ2d 1210 (Fed. Cir. 1995); *In re Newell*, 891 F.2d 899, 13 USPQ2d 1248 (Fed. Cir. 1989). The Examiner's mere identification of claim features in disparate references does not establish the requisite realistic motivation to support the ultimate legal conclusion of obviousness under 35 U.S.C. § 103. *Grain Processing Corp. v. American-Maize Products Co.*, 840 F.2d 902, 5 USPQ2d 1788 (Fed. Cir. 1988). Moreover, the Examiner's assumption does not establish the requisite motivation to modify a specific reference in a specific manner to arrive at a specifically claimed invention. *In re Deuel*, *supra*. Rather, a burden is imposed upon the Examiner to identify a source in the applied prior art for each claim limitations and identify a source for the requisite realistic motivation to modify a particular reference in a particular manner to arrive at a specifically claimed invention. *Smiths Industries Medical System v. Vital Signs Inc.*, 183 F.3d 1347, 51 USPQ2d 1415 (Fed. Cir. 1999); *In re Mayne*, 104 F.3d 1339, 41 USPQ2d 1451 (Fed. Cir. 1997).

Dependent claim 13 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Chapman in view of Becker and Hiraga and further in view of Tsutsumi et al. (E.P. Pat. App. No. 0 508 802 A1, hereinafter "Tsutsumi"). Applicants note that the Examiner cited the corresponding Japanese application on the PTO-892 form for the Tsutsumi reference.

Applicants incorporate herein the arguments previously advanced in traversal of the rejection of claims 11, 12 and 14 under 35 U.S.C. § 103 predicated upon Chapman, Becker, Hiraga and Carey. Dependent claim 13 is free from the applied art in view of its dependency from independent claim 11. Accordingly, reconsideration and withdrawal of the rejection are solicited.

It is believed that pending claims 11-14 are now in condition for allowance. Applicant therefore respectfully requests an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, the Examiner is invited to call Applicant's representative at the telephone number shown below.

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To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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